

REMARKS/ARGUMENTS

In the final rejection, claims 1, 15, 20-21, 24, 27 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu et al U.S Patent No. 5,517,344. Claims 11, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Jung et al U.S Patent Application publication No. 2005/0030468. Claims 2-3, 6-7, 10, 12, 16, 17, 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Jung et al. Claims 4-5, 8-9, 13-14 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Jung et al, and further in view of Takako et al U.S Patent Application publication No. 2003/0058264. Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Chung et al U.S Patent Application publication No. 2004/0012750.

1. Rejection of claims 1, 15, 20-21, 24, 27 and 32:

Referring to claim 1, Hu et al discloses a liquid crystal display panel comprising:
15 a first substrate (13); a second substrate (14) having an active region; a sealant (19) positioned on the second substrate and surrounding the active region for adhering the second substrate to the first substrate; a spacer wall (12) positioned on the second substrate and between the sealant and the active region, the spacer wall having at least one liquid crystal injected opening and at least one spacer block (15) positioned near
20 the liquid crystal injected opening; and a liquid crystal layer (18) positioned between the first substrate, the second substrate, and the sealant, [figs.6-7].

Claims 15, and 20-21 are met the discussion regarding claim 1 rejection above.

25 Regarding claims 24, 27 and 32, Hu et al discloses wherein the spacer wall separates the liquid crystal layer from the sealant.

Response:

Claims 1, 15 and 21 are amended to overcome the rejections presented by the
30 Examiner. Support for the amendment can be found in the written description as filed in paragraphs [0010]-[0011] and [0021]. No new matter has been introduced by this

amendment. According to the amended claims 1, 15 and 21, the present application relates to a liquid crystal display panel comprising a sealant and a spacer wall positioned on the second substrate and between the sealant and the active region. The spacer wall has at least one liquid crystal injected opening and at least one spacer block positioned near the liquid crystal injected opening. Additionally, the spacer wall is used to prevent the liquid crystal layer from being contaminated by the sealant and to support the first substrate, and the spacer block prevents the sealant from contaminating the liquid crystal layer.

The traditional sealant material used in industries may react with the liquid crystal molecules as influencing by the factors of temperature and time or other process factors. It seriously affects the orientations and twists of the liquid crystal molecules in defects and causes contaminations. When a common voltage is applied to the liquid crystal layer, the liquid crystal molecules near the sealant twist in a different direction from other liquid crystal molecules, and it results in that the display image near the sealant differs from the other positions of the LCOS display panel, causing the mura problem, and in decreasing the display performance of the LCOS display panel. In order to solve those problems, the present application provides a liquid crystal display panel including the spacer wall and the spacer block which separate the liquid crystal molecules from the sealant material.

The Examiner asserts that Hu et al disclose the similar device structure to the present application with two sealing bands 12 and 19, and considers sealing bands 12 would fit as a spacer wall. The description of sealing bands 12 and 19 are shown as follows: "the active drive circuitry 11 is integrally formed on the substrate 13 between the two sealing bands 12 and 19 and between upper and lower substrates 13 and 14. This provides a total seal for the circuitry 11 thus protecting it from the environment." *This shows that the sealing bands 12 and 19 are applied for sealing.* Hu et al do not mention that the sealing bands 12 and 19 are made with different materials and never teach that the seal band 12 has a preferable property that does not contaminate liquid crystal molecules and prevent the sealing band 19 or other seal materials from contaminating liquid crystal molecules. Since sealing band 12 is applied for sealing, it

might be a sealant material that probably reacts with the liquid crystal molecules. However, the spacer wall and the spacer block of the present application must have the capability of preventing the sealant from contaminating the liquid crystal layer, so the above-mentioned problems can be solved. Accordingly, the sealing band 12 is not 5 the same as the spacer wall mention in the present application which can effectively prevent liquid crystal molecules from being contaminated by the sealant, defined in the amended claims 1 and 15 of the present application.

As in the present application, the spacer wall is applied for isolating the sealant 10 and the liquid crystal layer in order to prevent the sealant from contaminating the liquid crystal molecules (par. 0021). The materials of the spacer wall must be different from the materials of the sealant so as to prevent the contamination. Compare to the present application, **a person skilled in this art can recognize the sealing bands 12 and 19 in U.S Patent No. 5,517,344 as the sealants, not the spacer walls of the present application.** Thus, Hu et al does not disclose any spacer wall for isolating the sealant and the liquid crystal layer.

In addition, Hu et al disclose a well-known adhesive 15 such as UV glue after the liquid crystal is inserted therein for blocking an opening (Fig.1, and col.3, lines 66-68). 20 However, in the present application, spacer blocks are positioned near the openings for preventing the sealant from contaminating the liquid crystal molecules (par. 0024). Therefore, **the spacer blocks do not block the opening and have different materials from the adhesive 15 or seal bond 12 in U.S Patent No. 5,517,344.** Thus, Hu et al do not disclose any spacer blocks. Accordingly, Hu et al never disclose all the 25 limitations, such as the spacer wall or spacer block, thus the amended claims 1 and 15 should be allowable.

Since Hu et al do not disclose any spacer wall or any spacer blocks defined in claims 1, 15, 20-21, 24, 27 and 32, so claims 1, 15, 20-21, 24, 27 and 32 are 30 patentable in comparison with U.S Patent No. 5,517,344. Reconsideration of claims 1, 15, 20-21, 24, 27 and 32 is respectfully requested.

2. Rejection of claims 11, 29 and 30:

Claims 11, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Jung et al U.S Patent Application publication No. 2005/0030468 for reasons of records,
5 as cited in page 3 in the above-identified Office action.

Response:

Claims 11, 29 and 30 are canceled, and have no need to be reconsidered.

10 3. Rejection of claims 2-3, 6-7, 10, 12, 16-17, 25, 28 and 33:

Claims 2-3, 6-7, 10-12, 16-17, 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Jung et al U.S Patent Application Publication No. 2005/0030468 for reasons of records, as cited in pages 4-5 in the above-identified Office action.

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Response:

Claim 12 is canceled, and has no need to be reconsidered.

Neither Hu et al nor Jung et al teach forming spacer walls or spacer blocks that
20 can prevent contamination of the liquid crystal layer from the sealant. Thus, the amended claims 1 and 15 should be patentable comparatively. Since claims 2-3 and 25 are dependent upon claim 1, and claims 16-17 and 33 are dependent upon claim 15, they should be allowed if claim 1 and claim 15 are allowed. Reconsideration of claims 2-3, 16-17, 25 and 33 is respectfully requested.

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Claim 6 is amended for specifically defining the characteristic of the present application. Support for the amendment can be found in the written description as filed in paragraphs [0010]-[0011] and [0021]. No new matter has been introduced by this amendment. According to the amended claim 6, the present application relates to
30 a liquid crystal display panel comprising a sealant, a spacer wall positioned between the sealant and the active region, and a thin film layer located on the peripheral region of the second substrate. The limitation "the spacer wall supports the first substrate

and prevents the liquid crystal layer from being contaminated by the sealant” has been added.

Referring to claim 6, since neither Hu et al nor Jung et al teach forming spacer walls or spacer blocks **that prevent contamination of the liquid crystal layer from the sealant**, the combination of Hu et al and Jung et al do not teach all the limitations of the amended claim 6. Therefore, applicants believe claim 6 should be allowable in comparison with the combination of Hu et al and Jung et al. As claims 7, 10 and 28 are dependent upon claim 6, they should be allowed if claim 6 is allowed.
Reconsideration of claims 6-7, 10 and 28 is respectfully requested.

4. Rejections of claims 4-5, 8-9, 13-14 and 18-19:

Claims 4-5, 8-9, 13-14 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Jung et al, and further in view of Takako et al U.S Patent Application Publication No. 2003/0058264 for reasons of records, as cited in pages 5-6 in the above-identified Office action.

Response:

Claims 13-14 are canceled, and have no need to be reconsidered.

The Examiner asserts that Takako et al disclose elements 33, 37 for aligning the liquid crystal molecules vertically. However, the reference of Takako et al never disclose a spacer wall or a spacer block **that prevents the liquid crystal layer from being contaminated by the sealant**. Therefore, even the combination of the references of Hu et al, Jung et al, and Takako et al cannot obtain the structure defined in the amended claims 1, 6 and 15 of the present application. Accordingly, claims 1, 6 and 15 should be allowable in comparison with the combination of all the cited references.

As claims 4-5 are dependent upon claim 1, claims 8-9 are dependent upon claim 6, and claims 18-19 are dependent upon claim 15, they should be allowed if claims 1, 6 and 15 are allowed. Reconsideration of claims 4-5, 8-9 and 18-19 is respectfully

requested.

5. Rejections of claims 22, 23, 26, 31 and 34:

Claims 22, 23, 26, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Chung et al U.S Patent Application publication No. 2004/0012750 for reasons of records, as cited in pages 6-7 in the above-identified Office action.

Response:

The Examiner asserts that Chung et al disclose spacers that comprise silicon nitride. The spacers 32 disclosed by Chung et al are formed on a portion of some of the pixel elements 20, 22 and positioned in the cell gap (Fig. 1-6 and [0027]). However, *Chung et al do not teach that the spacers are positioned between the liquid crystal layer and the sealant to prevent the sealant from contaminating the liquid crystal layer.* Because the positions of the spacers are different from the positions of spacer wall or spacer blocks, the spacers lack excellent capacity for protecting the liquid crystal layer positioned active region from being contaminated by the sealant. On other hand, Hu et al do not teach that the seal band 12 includes inorganic materials or photoresist materials, so the seal band 12 also lacks excellent capacity for protecting the liquid crystal layer positioned active region from being contaminated by the sealant. Accordingly, claims 1, 6 and 15 should be allowable in comparison with the combination of all the cited references.

As claims 22-23 are dependent upon claim 1, claim 26 is dependent upon claim 6, and claims 31 and 34 are dependent upon claim 15, they should be allowed if claims 1, 6 and 15 are allowed. Reconsideration of claims 22, 23, 26, 31 and 34 is respectfully requested.

Applicant respectfully requests that a timely Notice of Allowance be issued in

this case.

Sincerely yours,

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Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)